PRELIMINARY RESULTS OF A RECREATIONAL USE ATTAINABILITY ANALYSIS OF RESLEY CREEK (1221A), INDIAN CREEK (1221D), AND WALNUT CREEK (1221F)

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August 18, 2011

Summary

From July 1 through August 7, 2011, Texas AgriLife Research, Texas A&M University System, carried out RUAA surveys for Resley Creek (1221A), Indian Creek (1221D), and Walnut Creek (1221F). Following the methodology in TCEQ's 2009 Recreational Use Attainability Analysis Procedures, Texas AgriLife talked with landowners on these streams and collected RUAA data. Seventy-nine miles of streams were evaluated with 32 second surveys. Fourteen surveys were carried out on Resley Creek, 11 on Indian Creek, and 7 on Walnut Creek.

The RUAA fieldwork was carried out during the hottest and one of the driest summers on record for Texas. In general, all 3 streams had little to no water. During field surveys, several land owners along the streams indicated that these 3 streams have had little water for the last 5-10 years. The land owners did, however, indicate that these streams use to flow a lot more 30 to 50 years ago. During RUAA surveys this summer, no primary, secondary 1, or secondary 2 activities were observed during fieldwork. The only recreation observed during fieldwork was three teenagers hiking in the dry stream channel at survey point 1221D.3 on Indian Creek.

Despite the low flow conditions that currently characterize the streams, water related and general indications of human use were found. Two inner tubes were found on Resley Creek indicating primary contact in the recent past. Fishing equipment was found in all 3 streams including a fishing rod and reel in Resley Creek, and fishing tackle in Indian Creek (3) and Walnut Creek (2). An old 12 ft flat bottom aluminum boat was found 50m outside of a stream reach on Resley Creek. Lastly, remnants of children's play and toys were found on the bank of Resley Creek in the town of Dublin, TX.

In addition to inner tubes and fishing tackle, recorded plant and animal observations indicated that these streams often have water. All 3 streams had wetland plant species. Plant species included duckweed, Polygonum sp., cattails, willow, and button bush. Freshwater clam shells, aquatic turtle burrows, and crawfish burrows were found in all 3 streams. Lastly, both Resley and Indian Creek had pools that supported minnows and the other aquatic species.

Table 1. Survey response to the RUAA survey question Site Description.

Site Description .

- 1221A.6. Stream within City Park of Dublin. Stream is a grassy ditch that runs through park with picnic tables, RV camping, rodeo arena, pool, playground, and sports fields. This stream segment flows into another branch of Resley Creek.
- 1221A.5. Stream within town of Dublin. Next to park but blocked off by barbed wire fences.
- 1221A.7. Stream in residential area adjacent to houses on one side grassy area on the other.
- 1221A.8. Stream located in downtown Dublin in a commercial/residential area. Stream corridor is half forested and half mowed.
- 1221A.9. Residential stream within a suburban forest corridor and bridges on either end.
- 1221A.10. Rural stream in a forested corridor with large trees on private property. Wildlife abundant. Forested stream is in between pasture and agricultural field. Bridge and dirt road at the end of the reach.
- 1221A.11. Rural private stream in a forested corridor through a pasture.
- 1221A.3. Stream in very degraded/intensive pasture/feed lot with 60 head of cattle with full access to stream. Access road goes through stream bed.
- 1221A.12. Rural crossing a public road. In general stream runs through private pasture. Water present in 3 pools within reach.
- 1221A.13. Rural dry stream with a riparian forest in the middle of a privately owned cattle ranch.
- 1221A.4. Rural stream well away from a paved road. A lot of cattle and signs of wildlife. Very natural with partial forest on right side of stream.
- 1221A.2. Rural site under a bridge with forested corridor surrounded by horse pasture
- 1221A.14. Rural stream on large privately owned cattle ranch. Stream reach has a large impoundment with water behind it. Half of stream reach has a riparian corridor with large trees.
- 1221A.1. Rural stream adjacent to cow pastures with forested areas. Dry stream with 1 pool in reach 0.6 m deep.
- 1221D.2. Stream reach is within the city of Comanche. Bridge located at US HWY 67. Stream is on private property.
- 1221D.3. Stream reach is part of Comanche City Park. Park includes baseball field, pool with lifeguard, picnic tables, grills, multiple playgrounds and a hiking path along the stream made by the boy scouts.
- 1221D.4. Stream reach is part of Comanche City Park. Park includes baseball field, pool with lifeguard, picnic tables, grills, multiple playgrounds and a hiking path along the stream made by the boy scouts.
- 1221D.6. Stream is in a forested corridor and is on private property. Has a train track on the left bank.
- 1221D.5. Stream through Comanche neighborhood with a pasture and a winery. No water at time of survey.
- 1221D.8. Stream in a forested corridor flowing under St Hwy 36 through pasture. Stream has water and a very small flow.
- 1221D.7. Rural stream with a forested corridor on private sheep ranch
- 1221D.1. Rural stream in a cowless hay producing pasture/grassland. Stream has abundant wildlife and a riparian corridor.
- 1221D.9. Rural stream with bridge access in a forested corridor on private proterty. No water at time of survey
- 1221D.10. Rural stream on private lands running through an oak hammock and powerline corridor.
- 1221D.11. Rural stream on a private pecan farm. Bridge over stream at CR 326 bridge.
- 1221F.3. Privately owned rural stream in pasture that currently does not have cows. Stream dry. Stream reach is next to dirt road.
- 1221F.4. Rural stream in a pasture downstream impoundment for cattle. Photographed 7 dead clams, 1 live and 1 dead turtle, mammal scat, turtle and mammal burrows, dead turtle eggs, and wetland species including Typha (cattails) ans Salix (willow). No water at time of survey.
- 1221F.2. Privately owned rural stream next to US Hwy 67. Stream flows through pasture that currently does not have cows. Stream dry.

- 1221F.1. Privately owned rural stream with a forested corridor in a cow pasture. Large oaks present in 10 m (approx) wide corridor.
- 1221F.5. Rural stream next to cemetery with bridge access on CR 337. Due to fences, reach was restricted to 110m.
- 1221F.7. Rural stream within a forested corridor on private property. No water at time of survey.
- 1221F.6. Rural stream in forested corridor near Proctor with bridge crossing on CR 333.

Table 2. General RUAA stream characteristics.

Stream	Waterbody Name	Stream Type	Total Stream Miles	# of First Surveys	# of Second Surveys
1221A	Resley Creek	Intermittent	34.3	18	14
1221D	Indian Creek	Perennial	29.9	12	11
1221F	Walnut Creek	Intermittent w pools	14.7	8	7
		Totals	78.9	38	32

Table 3. Hydrologic stream characteristics with the frequency of recorded categorical field observations for each stream.

Stream	Avg Width (m)	Avg Thalweg (m)	Avg Flow (ft/s)	Flow Freq.	Stream Type Frequency	Channel Frequency	Water for Prim Contact? Freq.
1221A	0	0.014	0	.71 Dry .29 No flow	.43 Ephemeral .29 Intermittent .29 Intermittent w/ per. Pools	1 wadeable	1 No
1221D	0.455	0.08	0	.64 Dry .27 No flow .09 Low	.64 Intermittent .36 Intermittent w/ per. Pools	1 wadeable	1 No
1221F	0	0.002	0	.86 Dry .14 No flow	.43 Ephemeral .43 Intermittent .14 Intermittent w/ per. Pools	1 wadeable	1 No

Table 4. Sum of the left bank and right bank riparian zone corridor categorical observations with the percent of the dominant riparian zone categories calculated for each stream.

		# of	
Stream	Riparian Zone	Occurences	Percentage
Indian Creek	Forest	16	43%
	Mowed/maintained corridor	9	24%
	Riparian corridor	6	16%
	Pasture	3	8%
	Mowed/maintained corridor	1	3.0%
	Pecan Grove	1	3.0%
	Train track mowed corridor	1	3.0%
Resley Creek	Forest	22	43%
Resiey Creek	Pasture	17	33%
	Mowed/maintained corridor	5	10%
	Shrub dominated corridor	4	8%
	Mowed/maintained corridor	1	2%
		_	_
	Feed lot/feeding area Other (houses with trees in	1	2%
	backyard)	1	2%
Walnut			
Creek	Forest	11	58%
	Pasture	8	42%

A7 Describe Access Opportunities

- 1221A.6. Completely accessible. In City Park of Dublin. Banks and stream bed is grass for the most part.
- 1221A.5. On private property surrounded by barbed wire fences. Vegetation very overgrown on banks.
- 1221A.7. Very easy. Stream is mostly a grassy ditch going through mostly city property with roads on either end.
- 1221A.8. Easy access. Stream is located two blocks from downtown Dublin with a visible (from a major road) mowed corridor and two bridges.
- 1221A.9. Stream is in a residential area. Access is restricted due being privately owned with a barbed wire fence.
- 1221A.10. Stream is located between two private properties. Public access by a bridge is possible by a bridge especially if it is a locally known person. No fences across the stream were seen. If water were present fishing from bridge would be easy.
- 1221A.11. Stream is on a private ranch. Easy to access with permission. Without permission no public access.
- 1221A.3. On private property behind barns and houses. Easy access with permission otherwise no access. Access road has 4 plus no trespassing signs.
- 1221A.12. Stream runs through private pasture mostly. Crosses public road with great access and no intact fences.
- 1221A.13. In the middle of private property. No access without permission.
- 1221A.4. In the middle of private land. Very accessible with permission.
- 1221A.2. Site is under a bridge but enclosed in well built barbed wire fences. Barbed wire fences across stream at both ends of reach.
- 1221A.14. Stream reach is located in the middle of a ranch with no public access without permission.
- 1221A.1. Very, very rural. Must know owners to access. Mostly steep high banks with barbed wire fences
- 1221D.2. Stream runs through private property. Bridge access where US Hwy 67 crosses stream.
- 1221D.3. Great access. Stream is part of Comanche City Park.
- 1221D.4. Great access. Stream is part of Comanche City Park.
- 1221D.6. Rural stream is on private property and adjacent to a train track at the end of a street.
- 1221D.5. Very good access. Stream is in a neighborhood next to a power line corridor. The reach has two bridges. Stream and banks could be public land.
- 1221D.8. Stream is accessible by a bridge on St Hwy 36. Graffiti and fishing tackle indicate recreation and access.
- 1221D.7. Rural stream is located on private property. Accessible with permission.
- 1221D.1. Stream is on private property which is currently used for growing hay and hunting. No access without permission from owners.
- 1221D.9. Stream flows through a private ranch. Possible public access at a bridge where CR 324 crosses the stream. In general the stream has steep banks.
- 1221D.10. Rural stream on private land. No access without permission.
- 1221D.11. Stream runs through a private pecan farm. A bridge at CR 326 may provide access to public. In general stream has steep natural banks.
- 1221F.3. Stream is in a privately owned pasture next to public dirt road. Aside from this stream is very accessible with low and grassy banks
- 1221F.4. Stream in a private rural pasture directly next to US Hwy 67 south of Dublin. With permission access is vey easy due to grassy and low banks.
- 1221F.2. Stream is in a privately owned pasture next to a major highway. It is surrounded by a barbed wire fence. With permission it is easy to access.
- 1221F.1. Stream on private ranch. With permission access would be moderately easy due to dirt road and occasional low banks.
- 1221F.5. Rural stream next to cemetery with bridge access on CR 337. Due to fences, reach was restricted to 110m.
- 1221F.7. Stream on rural private property on CR 337. Has some steep banks.
- 1221F.6. Rural stream with forested corridor. Bridge crossing with CR 333. Private fence along bridge.

F2 Do hydrologic modifications affect recreation?

Resley Creek

- 1221A.6. Possibly due to impoundment upstream.
- 1221A.5. Possibly
- 1221A.7. Possibly. Two impoundments are located upstream.
- 1221A.9. Possibly. Two impoundments are located upstream.
- 1221A.10. Possibly. Two impoundments are located upstream.
- 1221A.11. Possibly. Impoundment upstream of survey site.
- 1221A.12. Possibly. Impoundments upstream of survey site.
- 1221A.13. Possibly. Impoundments upstream.
- 1221A.14. Yes

Indian Creek

- 1221D.2. Possibly. Impoundment within survey reach.
- 1221D.6. Possibly. Impoundments upstream.
- 1221D.8. Possibly. Impoundment might have helped create the measured substantial pool.
- 1221D.1. Possibly. Multiple impoundments upstream.
- 1221D.9. Possibly. Impoundments upstream.
- 1221D.10. Possibly. Impoundments upstream.
- 1221D.11. Possibly. Impoundments upstream.

- 1221F.4. Possibly. Impoundment directly upstream of survey site.
- 1221F.2. Possibly. Impoundment directly upstream.
- 1221F.5. Possibly. Impoundments upstream.
- 1221F.7. Possibly. Impoundments upstream.
- 1221F.6. Possibly. Impoundments upstream.

Table 7. Channel obstructions recorded during field surveys for each stream.

F3 Channel Obstructions

Resley Creek

- 1221A.8. Other (Yard clippings/debris)
- 1221A.9. Barbed wire
- 1221A.10. Log jams
- 1221A.11. Impoundment
- 1221A.4. Barbed wire
- 1221A.2. Barbed wire fence(2).
- 1221A.14. Dams

Indian Creek

- 1221D.2. Impoundment
- 1221D.3. Utility pipe
- 1221D.5. Low bridges
- 1221D.8. Impoundment
- 1221D.8. Log jams
- 1221D.7. Small impoundment
- 1221D.1. Log jams
- 1221D.1. Water control structure broken

- 1221F.4. Culvert going to impoundment
- 1221F.5. Fences
- 1221F.7. Log jams
- 1221F.6. Fences
- 1221F.6. Log jams

Table 8. All indications of human use recorded during field surveys. Values represent the number per site survey point.

Seg ID	Remnant's of Kid's play	Children's toys	Inner tube or raft	Fishing reel	Fishing Tackle	Minnow net	Fish bucket	Decoy duck	Shot gun shell(s)	Foot path	Old camping Site	House & picnic tables next to stream	Public Park	ATV Track	Road	Graffiti	Total
1221A.1	piuj	tojs	Turt	1001	Tueltie	1101	ouchet	1	SHCH(B)	Puili	Bite	Stream	T turk	Truck	11044	Granna	1
1221A.10				1					1								2
1221A.11				1					1		1						2
1221A.12									-		-				1		1
1221A.13												1					1
1221A.14			1									•					1
1221A.5			1														0
1221A.6													1				1
1221A.8	1	1											-				2
1221A.9		1	1														2
Sum	1	2	2	1	0	0	0	0	0	0	0	1	1	0	1	0	8
1221D.2														1			1
1221D.3										1			1				2
1221D.4										1			1				2
1221D.7					1				1								2
1221D.8					1					1						1	3
1221D.11					1										1		2
Sum	0	0	0	0	3	0	0	0	1	3	0	0	2	1	1	1	12
1221F.1															1		1
1221F.2					1										_		_ 1
1221F.3									1								1
1221F.6						1	1		1								3
Sum	0	0	0	0	1	1	1	0	2	0	0	0	0	0	1	0	6
Total	1	2	2	1	4	1	1	1	5	3	1	1	3	1	3	1	31

Table 9. Surrounding conditions that promote recreation recorded during field surveys for each stream.

F4 Promote Recreation

Resley Creek	Count	Percent	Indian Creek	Count	Percent
Bridge crossing	5	9	Within Comanche City Park	1	3
Natural surroundings.	5	9	Bridge crossing	5	13
Parks (national/city/county/state)	1	2	City Park	1	3
Playgrounds	1	2	Hiking trail	2	5
Populated area	2	4	Natural surroundings/corridor	7	18
Private road through stream	1	2	Paved parking lot	2	5
Public Property	2	4	Playgrounds	2	5
Residential	4	7	Populated area	4	10
Roads (paved/unpaved)	7	13	Power Line Corridor	1	3
Rural area	8	15	Public Property	1	3
Trails/paths (hiking/biking)	2	4	Roads (paved/unpaved)	5	13
Wildlife	16	30	Rural area	4	10
			Wildlife	5	13

Walnut Creek	Count	Percent
Bridge crossing	2	8
Little to no trash.	1	4
Natural surroundings/corridor	2	8
Roads (paved/unpaved)	7	28
Rural area	6	24
Wildlife	6	24
Within forested corridor	1	4

Table 10. Surrounding conditions that impede recreation recorded during field surveys for each stream.

F5 Impede Recreation

Resley Creek	Count	Percent
A lot of trash.	2	6
Cattle feeding area.	1	3
Ephemeral grassy ditch.	1	3
Fence	6	19
No public access	4	13
No trespass sign	1	3
No water at time of survey.	3	9
Private Property	8	25
Questionable water	1	3
Steep slopes	1	3
Stream is a grassy ditch.	1	3
Water but no flow.	1	3
Wildlife	2	6

Walnut Creek	Count	Percent
Fence	6	38
In a pasture	1	6
No flow at time of survey.	3	19
Private Property	5	31
Steep slopes	1	6

Indian Creek	Count	Percent
Fence	2	11
Garbage is common.	1	6
Moderately steep banks	1	6
No flow at time of survey.	1	6
No water at time of survey.	6	33
Private Property	7	39

Table 11. Survey response to Water Characteristics Photograph Description.

F7 Water Char. Photo Description

Resley Creek

- 1221A.10. Wetland vegetation in stream.
- 1221A.11. clam shell
- 1221A.11. crawfish mud burrows
- 1221A.11. aquatic turtle shell
- 1221A.11. impoundment directly upstream
- 1221A.11. Crawfish claw
- 1221A.12. Suspended algae in pool.
- 1221A.12. 3 species of aquatic plants
- 1221A.13. Wetland plant Polygonum sp.
- 1221A.4. Aquatic duckweed.
- 1221A.4. Aquatic duckweed.
- 1221A.4. Wetland veg in stream bed Polygonum.
- 1221A.14. Algae on water
- 1221A.1. Manure in dry stream bed and green pool.

Indian Creek

- 1221D.6. No water at time of survey.
- 1221D.8. Floating duckweed
- 1221D.7. Algae
- 1221D.7. Dead fish near dwindling pool.
- 1221D.1. Algae cover
- 1221D.1. 2 species Aquatic veg.
- 1221D.1. Photo of a pool
- 1221D.9. No water in stream.
- 1221D.11. NP. No descr. necessary.

- 1221F.3. NP. No water present.
- 1221F.4. Typha (cattails)
- 1221F.4. Salix (willows)
- 1221F.2. NP. No water.
- 1221F.5. No water at time of survey.

Table 12. All animal evidence recorded during field surveys. Data compiled from F8 and F9 Photo Description and Animal Evidence.

Seg ID	Resley Creek	Seg ID	Indian Creek	Seg ID	Walnut Creek
1221A.1	Cow prints, scat, trails, and skull.	1221D.1	Raccoon, deer, coyote?, turtle prints	1221F.1	Mammal scat.
	Fecal droppings		Freshwater snails, frogs, and clam shells.		Buurows
1221A.10	Mammal burrows.		Mammal scat and wild boar tree marks.		Cattle trail going to stream.
	Animal feces.		Mammal, turtle, and crawfish burrow		Cow manure in stream bed.
	Animal trails.		Raccoon, deer, coyote?, turtle prints		Cow prints in stream.
	Dead armadillo in stream.		Turtle, fish, armadillo skeleton		Fecal droppings
	Mammal burrows.		Bird guano		Mammal burrows.
	Raccoon tracks.		Wetland bird tracks		Snake skin.
	Snake tail hard to see.	1221D.10	Shells Freshwater clams	1221F.2	Mammal burrow.
	Dug up turtle? eggs.		Animal burrow		Cow manure on stream bed.
	Dead turtle in stream.		Deer/Hog prints p 91. Minnows p 96.		Dead dog on stream bed.
1221A.11	Cow manure in stream		Mammal scat		Goat? skull.
	Cow print in stream		Racoon prints and Cow trail		Mammal burrow.
	Cow trail to stream		Wetland frog		Stream turtle shell.
1221A.12	Clam and crawfish		Wading bird prints in mud	1221F.3	Mammal scat.
	Bird nests		Dead bird		Burrows
	Bird tracks	1221D.11	freshwater clam shells		Cow manure on stream bed.
	Dead aquatic turtles		Dead aquatic turtle		Fecal droppings
	Fecal droppings		Dead crawfish		Mammal burrows.
	Mammal scat and burrow		freshwater clam shells	1221F.4	7 different dead clams
	Raccoon tracks		Mammal burrows and scat		Cow hoof prints.
	Turtle tracks		Turtle and crawfish burrow		Cow manure in stream bed
	Wild boar/hog skull.		Bird skeleton		Live and dead turtle
	Snake skin		Bird guano		Mammal burrows
	Bird guano	1221D.2	Hog scat		Mammal scat
	Wetland bird prints		Burrows		Turtle egg shells
	Birds nest over pool.		Deer and raccoon tracks		Wetland nesting bird nest
1221A.13	Burrows		Hog scat		
	Deer print	1221D.3	Dead deer in stream channel.		
	Scat				

Table	12.
Contir	nued

Seg ID	Resley Creek	Seg ID	Indian Creek
1221A.13	Turtle shell, snake skeleton, snake skin	1221D.4	Burrow
	Wetland frog, dead crawfish		Crawfish burrow
	snake skeleton, snake skin		Raccoon tracks
1221A.14	Livestock evidence		Saw three deer on bank.
	Beaver sign, snake skin	1221D.5	Mammal scat
	Burrows, Fish skeleton, Turtle eggs		Burrow
	Deer scat		Deer skeleton
	Raccoon, skunk, coyote, deer tracks		Mammal scat
	Wetland frog		Raccoon and Deer? print
	Snake skin		Snake skin
	Water bird tracks		Snake skin
1221A.2	Cow manure	1221D.6	Possum skeleton
	2 Horses in stream bed.		Burrow
	Horse scat.		Possum skeleton
	Horse trails.		Trail
	Snake skin in front of hole p 51.	1221D.7	burrow
1221A.3	cattle		dead fish
	Tracks		Large trees
1221A.4	Mammal burrow		racoon, canine track
	Burrows	1221D.8	Beaver sign
	Cow evidence in stream.		Burrows
	Cow manure in stream bed		Racoon Prints
	Cow trails to stream		Wild boar tree marks
	Fecal droppings	1221D.9	Burrows
	Mammal scat		Clam Species 1 (Big)
	Snake skins.		Clam species 2 (Sm.)
1221A.5	Burrows and cow manure.		Crawfish burrow
1221A.6	Animal Burrow.		Scat and an animal trail
1221A.8	Crawfish burrows.		

Seg ID Walnut Creek

1221F.7 Animal trail.

1221F.6 Bucket dead fish
Cow scat and track
Hog marks, Beaver sign
Mammal burrow
Mammal scat and track
Turtle Burrow and Aquatic
Frog
Snake skeleton
Waterbird scat
Snake skin.
Burrows.

F13 General Comments

Resley Creek

- 1221A.6. Photo 18 shows beginning of reach directly downstream of impoundment. Photo 39 (also took GPS point) shows confluence with other branch of Resley Creek.
- 1221A.7. Landowner said it has been ephemeral since 1970. Said water was present in 1959. Also, took photo of culvert 200m down reach. Possible tributary or point source.
- 1221A.8. Stream is next to major road 2 blocks from downtown Dublin. Active crawfish burrows indicate surfical groundwater.
- 1221A.9. Inner tube found indicates primary contact recreation.
- 1221A.10. Persistent wetland vegetation and log jams indicate regular water presence and periodic large flows, respectively.
- 1221A.11. No water at time of survey. Has evidence of recent water including shells of fresh water clams, crawdad mud burrows, craw fish claw, and aquatic turtle shell. Has impoundment.
- 1221A.3. Severely degraded/impacted pasture/feed lot directly next to stream. 60 head of cattle have full access to stream and stream bed. Area is dominated by cattle and feeding equipment.
- 1221A.12. A lot of evidence of aquatic animals and plants including freshwater clams, turtles, and crawfish.. 3 pools in reach with water. 3 species of live aquatic plants.
- 1221A.13. Site has a lot of wildlife.
- 1221A.4. If flowing water was present this would be a pretty nice area to recreate.
- 1221A.2. Horses have been given direct access to stream
- 1221A.14. Has a large new impoundment, wetland frogs and a lot of wildlife. A tire inner tube was found. It could be used for tubing by a child.
- 1221A.1. Evidence of past water recreation (duck decoy, and old boat 50 m outside of reach). Wetland plant in stream bed Photo 18 Cephalanthus occidentalis. Evidence of beavers and recent water.

Indian Creek

- 1221D.4. Possible point source of chlorinated water from the pool at Comanche city Park.
- 1221D.5. Area around the stream is pasture and suburban with a local winery.
- 1221D.8. Stream had flow, a very long substantial pool, and 2 separate sets of fishing line and bobbers.
- 1221D.7. Site has a lot of wildlife and one substantial pool. Fish trap found.
- 1221D.1. Site teeming with wildlife.
- 1221D.9. Shells of 2 species of fresh water clams. Crayfish burrows. No water at time of survey.
- 1221D.10. Shells of two species of clams. Wetland frogs present. Water present. No water flow.
- 1221D.11. Fishing tackle and shells of freshwater clams were found in stream channel.

- 1221F.4. Wetland plants, live aquatic turtles, and an abundance a fresh water clam shells (clams could be aestivating in the mud of stream bed).
- 1221F.5. Rural stream next to cemetery with bridge access on CR 337. No water at time of survey. Total reach length 110m.
- 1221F.6. Fishing bucket and minnow net found. Abundant wildlife including wetland frogs and a turtle burrow.